

Cable Median Barrier Performance Report 2009

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Washington State
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Purpose

- WSDOT Study in 2002 recommended barrier in medians up to 50 feet wide – focus on cable systems.
- Program implemented – 169 miles targeted for installation.
- Marysville segment evolved as a concern, prompting a January 2006 performance report on first installations.
- February 2007 crash in Marysville prompted Governor Gregoire to request independent evaluation
 - WSDOT committed to annual reports for the next 2 years.

Report Contents

- Barrier Trends & Performance
- WSDOT Policy and Actions
- Update on Marysville Segment
- Next Steps
- Installation Status
- Performance of Individual Installations

Data Evaluated

- 181 miles of cable barrier installations
- Over 15,000 collisions
 - Before and after cable installation
 - 5 years prior to installation through 2008
 - 1647 cable barrier strikes
 - Beam guardrail collisions
 - Concrete barrier collisions

Barrier Trends & Performance

- 44% reduction in rate of fatal injury collisions.
- 64% reduction in rate of serious-injury collisions.
- 65% reduction in rate of cross median collisions.
- 46% reduction in rate of median rollover collisions.



Barrier Comparison - Injury Severity

Barrier Type	Reported Collisions	Not Stated	No Injury	Possible Injury	Evident Injury	Serious Injury	Fatal
Cable Barrier	1,647	26 (1.6%)	1298 (78.8%)	165 (10.0%)	118 (7.2%)	23 (1.4%)	17 (1.0%)
Beam Guardrail	2,979	59 (2.0%)	1,828 (61.4%)	654 (22.0%)	361 (12.1%)	56 (1.9%)	21 (0.7%)
Concrete Barrier	9,708	183 (1.9%)	5,788 (59.6%)	2,394 (24.7%)	1155 (11.9%)	148 (1.5%)	40 (0.4%)
Total	14,334	268 (1.9%)	8,914 (62.2%)	3,213 (22.4%)	1,634 (11.4%)	227 (1.6%)	78 (0.5%)

Low/High Tension Injury Comparison

Barrier Type		Reported Collisions	Not Stated	No Injury	Possible Injury	Evident Injury	Serious Injury	Fatal
Low Tension	Contained in median	742 (85.9%)	16 (1.9%)	598 (69.2%)	68 (7.9%)	50 (5.8%)	8 (0.9%)	2 (0.2%)
	Redirected	70 (8.1%)	3 (0.3%)	58 (6.7%)	4 (0.5%)	4 (0.5%)	1 (0.1%)	0
	Cross Median	52 (6.0%)	0	17 (2.0%)	10 (1.2%)	13 (1.5%)	6 (0.7%)	6 (0.7%)
High Tension	Contained in median	560 (71.5%)	3 (0.4%)	459 (58.6%)	54 (6.9%)	37 (4.7%)	4 (0.5%)	3 (0.4%)
	Redirected	194 (24.8%)	4 (0.5%)	150 (19.2%)	26 (3.3%)	11 (1.4%)	2 (0.3)	1 (0.1%)
	Cross median	29 (3.7%)	0	16 (2.0%)	3 (0.4%)	3 (0.4%)	2 (0.3%)	5 (0.6%)

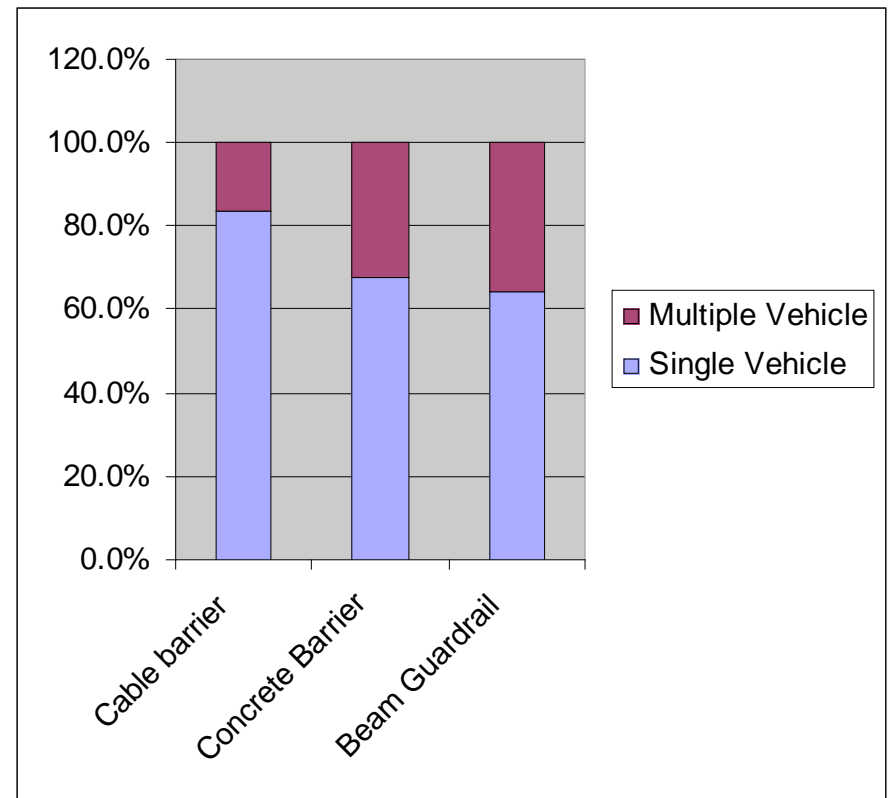


Cable Barrier Comparison with Concrete

	Low-tension cable barrier (41 miles) 1995-2008	High-tension cable barrier (150 miles*) 2004-2008	Concrete barrier (58 miles) 2002-2008
Cross-median Incidents	52 (6.0%)	29 (3.7%)	28 (2.2%)
Cross-median rate (per 100 million vehicle miles traveled)	0.67	0.64	0.25
Fatal crashes where barrier was impacted	8 (0.9%)	9 (1.1%)	7 (0.8%)
Deaths from collisions where barrier was impacted	12	11	10
Fatal crash rate (per 100 million vehicle miles traveled)	0.10	0.20	0.06

Number of Injuries per Collision

	Cable Barrier	Concrete Barrier	Beam Guardrail
Single Vehicle Collisions	0.17	0.43	0.49
Multiple Vehicle Collisions	0.93	0.66	0.67
All Collisions	0.30	0.51	0.56



Update on Marysville Segment

- December 2007 - \$26.9 million allocated to widen NB shoulder and place concrete barrier.
- April 2009 – Contract awarded to Tri-State Construction – work began July 2009.
- Barrier installation is expected to be complete in Spring 2010.
- High tension cable adjacent to SB lanes will remain in place.
- No cross median collisions after February 2007.

Next Steps

- SR 8 – Under contract
- Installations on US 195, US 395 programmed
- Additional installations on partial/modified access control and wider medians
- Replacing low tension installations with high tension
- Moving toward 4 cable high tension installs/retrofit

Installation Status

- 169 miles targeted in 2002.
- Initial focus on Full Access controlled facilities with medians 50 feet or narrower.
- All but $\frac{3}{4}$ mile now has barrier or is under contract – last segment programmed.
- Expect to total 219 miles when complete.

Questions?

For questions regarding Cable Median Barrier Performance,
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